

REMARKS

Reconsideration of the present application is respectfully requested.

New claims 15-22 have replaced the original claims in order to more clearly distinguish the present invention from the Rinnemaa patent.

The Rinnemaa patent teaches to calculate errors that occur in gravity sensors as the result of moving a beam 6 simultaneously in multiple planes arranged perpendicularly to one another, e.g., x and y planes. That is, the patent assumes that the incremental angles of movement of the beam in each plane are accurately sensed by the respective gravity sensor, but that if the beam is moved simultaneously in more than one plane, then errors will occur in the gravity sensors due to principles of geometry, which errors are capable of being determined mathematically. Thus, the patent teaches to mathematically calculate the errors for various combinations of angular movements, e.g., an angle a in one plane plus an angle b in another plane, so that a compensation for the errors can be made during an actual drilling operation. Since the calculations are made mathematically, there is no need to actually move the boom to angularly spaced intervals to determine actual correction values.

In contrast, the presently claimed invention seeks to compensate for deviations between an actual drilling position and a theoretical position, which deviations result from mechanical causes, e.g., loose play in the joints, deformations of the parts, etc., rather than on geometric principles. Thus, the present invention does not assume that movements of a boom about each individual joint within a single plane are accurately sensed; rather it assumes that such sensed movements may be inaccurate. The invention involves actually moving the boom incrementally along its path of movement about one joint and determining the deviation for each increment of movement. Thus, for example, one can determine the deviations that occur as the boom 4 is swung about joint 2, and store such deviations, so a correction can be made when such movement is subsequently performed during an actual drilling operation. If one also knows the deviations that occur during rotation

of the boom about the axis 3, then another correction can be made if the device 9 is also rotated about axis 3 during a drilling operation.

Thus, claim 15 recites in step A, actually turning the boom to predetermined angularly spaced intervals to obtain deviations. (Rinnemaa calculates errors mathematically.) Claim 15 recites that the movements are made about a "first" of the joints. (Rinnemaa only calculates errors resulting from movement about two joints simultaneously.) Claim 15 recites that deviations of the boom are measured. (In Rinnemaa, errors are calculated.)

Accordingly, it will be appreciated that claim 15 distinguishes markedly from the method of Rinnemaa and is patentable thereover.

Dependent claim 16 recites the storing of a second set of deviations that are obtained "independently" of the first set by turning the boom about a second joint. In Rinnemaa, a set of errors are calculated by turning the boom about two joints simultaneously. The errors in Rinnemaa result from the movement in about two joints and the errors are thus not obtained independently about the two joints.

This is also the case in connection with dependent claim 17 which is directed to linear movement of the boom (as contrasted to turning movement of the boom).

Claim 19 recites a corresponding apparatus with respect to the method. Thus, claim 19 recites a memory device for storing a first set of deviations obtained by turning the boom from a reference position to predetermined angularly spaced intervals about a first of the joints, and measuring for each interval a deviation of the base position from a theoretical position. Claim 19 also recites a calculating device operable during a drilling operation for using the stored first set of deviations as correction values for locating the boom in the theoretical positions corresponding to the respective intervals about the first joint.

The Rinnemaa patent does not disclose or suggest the apparatus defined by claim 19. Accordingly, it is submitted that the present claims distinguish over the prior art.

The Official action indicates that Swedish patent 395,744 which accompanied the Information Disclosure Statement was not considered because it is not in the English language and no explanation of its relevance was provided. However, MPEP 609 sets forth an exception to that requirement as follows

"where the information listed is not in the English language, but was cited in a search report or other action by a foreign patent office in a counterpart foreign application, the requirement for a concise explanation of relevance can be satisfied by submitting an English-language version of the search report or action which indicates the degree of relevance found by the foreign office. This may be an explanation of which portion of the reference is particularly relevant, to which claims it applies, or merely an "X", "Y", or "A" indication on a search report.

A copy of an international search report submitted with the filing of the present application cited the Swedish patent and identified it as a category A reference, i.e., pertaining to the general state of the art, which is not considered to be of particular relevance.

It is therefore submitted that the Swedish patent should be considered and treated as being merely of general interest.

In light of the foregoing, it is submitted that the application is in condition for allowance.

Respectfully submitted,

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Date: April 29, 2003